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EXAMINER

LEE, BENJAMIN C

ART UNIT	PAPER NUMBER
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2632

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,327

Applicant(s)

RAST, RODGER H.

Examiner

Benjamin C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-22, 25, 26, 28-42, 44-49, 55 and 60-96 is/are pending in the application.
- 4a) Of the above claim(s) 55 and 62-66 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 67-96 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-22, 25, 26, 28-42, 44-49, 60 and 61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Response to Amendment

Claim Status

1. Claims 1-10, 12-22, 25-26, 28-42, 44-49, 55 and 60-96 are pending.
2. Applicant's election without traverse of claims 1-10, 12-22, 25-26, 28-42, 44-49, 60-61 and 67-96 in Paper No. 13 is acknowledged.
3. Claims 55 and 62-66 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 13.

Claim Rejections - 35 USC § 112

4. Amended claims 1-5, 12-13, 47 and 60-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1) In claim 1, lines 6-7, "said alert signal" has two different antecedents, on line 4 and line 7, respectively.

2) Claims 2-5 and 60-61 are similarly rejected due to dependency on claim 1.

3) Claims 12-13 are rejected due to dependency on cancelled claim 11. As a result, further consideration on the merits against prior art could not, and will not be given to claims 12-13 at this time.

4) In claim 47, how is the driver alerted to the severe roadway conditions should be further defined, since no such information has been claimed to be received or generated by the controller or the system in general.

Claim Rejections - 35 USC § 103

5. Amended claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao (US pat. #5,717,377) in view of Rahman (US pat. #6,121,896).

1) In considering amended claim 1:

Gao disclose the claimed anti-collision system for use within a motorized vehicle (Abstract), comprising: means for sensing the urgency with which the brakes of a first vehicle are being activated (deceleration sensor 12 of Fig. 1 having 3 level outputs 24a-24c, which detects deceleration including those resulting from brake activation according to col. 1, lines 34-50; col. 2, lines 28-35 and col. 5, lines 1-4) and generating an alert signal (24a-24c) in response thereto; a visual indicator directed rear-wardly of said first vehicle (rear brake lamp assemblies 26a-26c of Fig. 1; light bulbs 28, and variable brightness intensity signal according to col. 5, lines 1-4); and means for rear-wardly communicating sufficiently urgent levels of braking as a wireless alert signal (infrared transmitter 40) which includes position related data (since intensity of deceleration resulting from brake pedal depression is directly related to brake pedal position, data corresponding to intensity of brake lighting caused by intensity of deceleration that is wirelessly transmitted constitutes position related data) for qualifying said alert signal (Fig. 3 and col. 5, lines 1-12 and col. 6, lines 19-28), said alert signal adapted for receipt by anti-collision system within a vehicle following said first vehicle for providing advanced warning to a driver for the avoidance of collisions (Fig. 3 and col. 5, lines 12-20);

Rahman teaches equipping each vehicle with both wireless receiver (R) and transmitter (T) so that multiple following vehicles can be warned of a deceleration condition of a leading

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vehicle such as from brake switch (30 activation (Figs. 1 & 3), and furthermore that the wireless alert signal can be either an infrared or radio frequency signal as alternatives (col. 2, lines 42-43).

In view of the teachings by Gao and Rahman, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to equip each vehicle in an anti-collision warning system such as taught by Gao with both transmitter and receiver such as taught by Rahman so that multiple following vehicles can be alerted of, and benefited from, the detected deceleration of the leading vehicle, whereby the wireless signal can take on a radio frequency signal as an alternative to infrared signal as taught by Rahman based on considerations such as concerns with interference nature of sunlight with infrared receivers.

2) In considering claim 3, Gao and Rahman made obvious all of the claimed subject matter as in amended claim 1, including:

--the claimed acceleration sensor responsive to the acceleration to which the brake pedal is being subjected (12 of Gao as considered above regarding claim 1).

6. Amended claims 2, 6-8, 10, 14-19, 21, 28-30, 33-35, 39, 44-46, 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Rahman and Gearey (US pat. #4,916,431).

1) In considering claim 2, Gao and Rahman made obvious all of the claimed subject matter as in amended claim 1, while:

Gearey teaches that detection of urgency/intensity of vehicle deceleration can be implemented at least in part by a brake pedal pressure sensor system mounted on the brake pedal responsive to the pressure with which the brake is being applied to provide plural deceleration urgency/intensity outputs (Abstract; 45, 47).

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In view of the teachings by Gao, Rahman and Gearey, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that deceleration urgency detected by the deceleration sensor in the system of Gao and Rahman can alternatively be implemented at least in part by a known brake pedal pressure sensor such as taught by Gearey to provide the same function, whereby the choice to use such pressure sensor can be dictated by considerations such as cost and availability of parts at the time of implementation.

3) In considering amended claims 6-8 and 10, 14, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in the consideration of amended claims 2 and 5.

4) In considering amended claim 15, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 14, wherein:

--the claimed communications link is configured with a communications protocol in which a multiplicity of senders and signal regenerators are synchronized to the event being generated from a primary signal generator located the farthest forward within a group of vehicles is met by Figs. 1 and 3 of Rahman.

5) In considering amended claims 16 & 18-19, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in 14, except:

--the claimed said communications protocol comprises a multiplicity of time slots, with periodic transmissions such that the period between transmissions is temporarily offset to prevent signal collision, selected for event signal transmission by said controllers within anti-collision system of additional vehicles proximal to said first vehicle.

However, Rahman teaches the desirability to ensure signal transmission is not erroneously received (col. 2, lines 36-42). It would have been obvious to one of ordinary skill in

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the art at the time of the claimed invention that in order to prevent erroneous signal reception such as due to interference and transmission signal collision, a well known time-slot transmission protocol such as Time Division Multiplexing in which transmissions, with periodic transmissions/repetitions for ensuring reception, and with the period between transmissions being temporarily offset to prevent signal collision, are assigned with particular time slots can be implemented with the event signal transmission in the system taught by Gao, Rahman and Gearey such that multiplicity of time slots selected for event signal transmission by said controllers within anti-collision system of additional vehicles proximal to said first vehicle. Such communication protocol for preventing signal interference and collision, and for ensuring data reception, are well known in the communications art in general, and one skilled in the art is motivated to use it in the system taught by Gao, Rahman and Gearey as indicated above.

6) In considering amended claim 17, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 16, plus Figs. 1 and 3 of Rahman.

7) In considering amended claim 21, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, including:

--the claimed said controller is configured to multiple levels of severity data within the event signal (col. 6, lines 19-25 of Gao).

8) In considering amended claims 28-29, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, whereby:

--Rahman teaches that in addition to the brake deceleration detector 30, a "problem sensor 33" (Fig. 3) defined as a sensed condition which is likely to decrease the forward speed of the vehicle (col. 4, lines 51-65) is operably connected to said controller and configured to

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generate a problem event signal in response to detection of the problem, while Gao teaches the use of a deceleration sensor 12 that senses vehicle deceleration resulting from various conditions including braking and inherently a crash event. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a well known crash sensor in a vehicle constitutes a specific example of the “problem sensor” of Rahman according to its definition, and therefore, such crash sensor, such as that taught by Gao, can specifically be included as a further sensor in a system such as taught by Gao, Rahman and Gearey to cover a specific crash problem that would slow down the vehicle.

9) In considering amended claim 30, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 28, whereby:

--it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that various crash sensors known in the vehicle crash detection art, such as that comprising a signal generated by airbag circuitry within the vehicle which is activated in response to airbag deployment, can be used to provide the function of the crash sensor in a system such as taught by Gao, Rahman and Gearey so that additional cost associated with a separate crash sensor can be saved since such airbag system already exists in modern vehicles.

10) In considering amended claims 33-34, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, including:

--the claimed event indicator located in said secondary vehicles is adapted to provide a visual/audio indication of said alert signal to the drivers of said secondary vehicles (26, 44 of Gao; 31, 32 of Rahman).

11) In considering amended claim 35, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, wherein:

--since the transmitted signal of Gao includes the severity/intensity level of the event, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to make use of such level information to provide feedback as to the importance of the alert to the drivers of said secondary vehicles in a system such as taught by Gao, Rahman and Gearey.

12) In considering amended claim 39, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, including:

--the speed sensor as claimed is met by 27, 26, 24 in Fig. 3 and corresponding disclosure of Rahman.

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a known speed dependent alerting feature taught by Rahman in a system such as taught by Gao, Rahman and Gearey so that confusion does not result from unnecessary alerts.

12) In considering amended claims 44 and 48, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, wherein:

Gao teaches that upon receipt of an event signal over the communications link the controller is capable of generating a signal to the vehicle system to automatically decelerate the vehicle so that the car can begin the decelerate immediately upon receipt of the event signal (col. 5, lines 16-20). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention : 1) that in situations where the cruise control is already on in a vehicle equipped with a system such as taught by Gao, Rahman and Gearey, automatically decelerating

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the vehicle can be implemented by generating a signal to the cruise control for releasing the pressure on the accelerator pedal; 2) to implement such automatic deceleration by activating the automatic braking mechanism by the controller.

13) In considering amended claims 45-46, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, wherein:

Malfunction/error detection or self-diagnostics features to record keeping and for disabling at least a portion of an operation routine such as by shut-down, disable or reset, upon error detection of the controller so as to prevent unintended control/command and for proper maintenance and diagnostics have been well known in controllers and other routine-driven devices/systems. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include such a malfunction/error detection, recordation and shutting down feature for the controller in a system such as taught by Gao, Rahman and Gearey to prevent unintended and erroneous controller operations/outputs when such errors have been detected, as well as provide helpful record for diagnostic and maintenance purposes.

14) In considering amended claim 49, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, plus the consideration of claim 48 above, wherein:

Gearey teaches that vehicle deceleration can also be detected by accelerator pedal pressure sensor (Abstract) as an additional or alternative way to sense vehicle deceleration.

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include such an accelerator pedal pressure sensor such as taught by Gearey in a system such as taught by Gao, Rahman and Gearey so that hard deceleration can be detected in a timely manner for improved anti-collision safety.

7. Amended claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Rahman, Gearey and Donnelly et al. (US pat. #6,076,028).

1) In considering amended claim 42, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, plus the consideration of claim 30, while:

Donnelly et al. teaches configuring a vehicle communication link/channel for transmitting significant event signals such as collision event signals which are capable of being received by a properly configured-receiver personnel so that personnel may be dispatched to the scene (Fig. 1A-1B).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a dispatch communication feature such as taught by Donnelly et al. in a system such as taught by Gao, Rahman and Gearey so that when a crash event has been detected, help can be dispatched for improved safety to vehicle occupants. Furthermore, instead of direct communication between a vehicle system and the remote dispatch center, well known Highway Information System type road-side communications systems including road-side call box type communicators can be utilized as a relay or repeater to help deliver the communicated signal to the dispatch center, especially where roadway locations are not covered by cellular communication.

8. Amended claims 31 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Rahman, Gearey and Yanagi (US pat. #6,278,360).

1) In considering amended claim 31, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, whereby:

--Rahman teaches that in addition to the brake deceleration detector 30, a “problem sensor 33” (Fig. 3) defined as a sensed condition which is likely to decrease the forward speed of the vehicle (col. 4, lines 51-65) is operably connected to said controller and configured to initiating event signal generation by said controller in response to sufficient amount of detected sensor output and of conditioning the response of the controller.

In the same art, Yanagi teaches a vehicle anti-collision warning system that uses swerve detection (22, 23, 24 in Fig. 1). In view of the teachings by Gao, Rahman, Gearey and Yanagi, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a known swerve detector such as taught by Yanagi in a vehicle constitutes a specific example of the “problem sensor” of Rahman according to its definition, and therefore, such swerve sensor can specifically be included as a further sensor in a system such as taught by Gao, Rahman and Gearey to cover a specific condition/problem that would slow down the vehicle in order to warn of following vehicle drivers for improved anti-collision safety.

2) In considering amended claim 41, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in claim 6, whereby:

--Rahman teaches that in addition to the brake deceleration detector 30, a “problem sensor 33” (Fig. 3) defined as a sensed condition which is likely to decrease the forward speed of the vehicle (col. 4, lines 51-65) is operably connected to said controller and configured to initiating event signal generation by said controller in response to sufficient amount of detected sensor output and of conditioning the response of the controller.

In the same art, Yanagi teaches a vehicle anti-collision warning system that uses range detection (10 in Fig. 1) as claimed for detecting impending crash situations. In view of the

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teachings by Gao, Rahman, Gearey and Yanagi, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a known range detection used for detecting impending crash situations such as taught by Yanagi in a vehicle constitutes a specific example of the “problem sensor” of Rahman according to its definition, and therefore, such range detection device can specifically be included as a further sensor in a system such as taught by Gao, Rahman and Gearey to cover a specific condition/problem that would slow down the vehicle in order to warn of following vehicle drivers for improved anti-collision safety.

9. Amended claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Rahman and Sendowski (US pat. #6,225,896).

1) In considering claim 4, Gao and Rahman made obvious all of the claimed subject matter as in amended claim 1, while:

Sendowski teaches the known use of reverse lights of a vehicle as visual indicator of deceleration warning being seen from behind the vehicle to provide a clear, self-explanatory, sharp and timely warning to a following driver to slow down (Abstract; Figs. 1-8).

In view of the teachings by Gao, Rahman and Sendowski, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the vehicle reverse lights such as taught by Sendowski to implement the visual indicator in a system such as taught by Gao and Rahman to provide a clear, self-explanatory, sharp and timely warning to a following driver to slow down.

10. Amended claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Rahman, Gearey and Matsumoto (US pat. #6,150,933).

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1) In considering claim 9, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in amended claim 6, while:

Matusmoto teaches mounting the brake pressure sensor within the linkages connecting to the brake pedal (Fig. 2) as opposed to mounting it on the brake pedal.

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the brake pressure sensor assembly in a system such as taught by Gao, Rahman and Gearey can alternatively be mounted within the linkages connecting to the brake pedal such as taught by Matsumoto as a matter of personal preference, where some users prefer the operating feel of a conventional brake pedal instead of one having incorporated thereon a pressure sensor.

11. Amended claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Rahman, Gearey and Beymer (US pat. #5,424,726).

1) In considering claim 22, Gao, Rahman and Gearey made obvious all of the claimed subject matter as in amended claim 6, while:

Beymer teaches that the controller is configured to encode identification data allowing event signals generated from different vehicles to be distinguished from one another (col. 8, line 65 to col. 9, line 44, whereby the encoded data identifies whether a preceding vehicle is braking, whether belonging in a chain, etc.)

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include the feature of encoding the identification data such as taught by Beymer in a system such as taught by Gao, Rahman and Gearey so that more specific information can be

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discerned by the following systems and users for improved situational awareness for improved anti-collision safety that is the purpose of the invention.

Allowable Subject Matter

12. Claims 67-96 allowed.

13. Claims 5, 20, 25-26, 32, 36-38, 40, 47 and 60-61 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments with respect to the claims above have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Freeman et al., US pat. #4,231,013

--A similar brake pedal linkage sensor.

2) King, US pat. #6,359,552

--A similar fast brake warning system.

3) Brillard et al., US pat. #5,289,182

--A similar vehicle anti-collision transmitting and warning system.

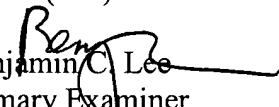
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin C. Lee whose telephone number is (703) 306-4223.

The examiner can normally be reached on Mon -Fri 11:00Am-7:30Pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on (703) 308-6730. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.


Benjamin C. Lee
Primary Examiner
Art Unit 2632

B.L.
1/11/04